REMARKS

I. General

Claims 1-18 are pending in the present Application. Claims 3 and 10 are amended, while claims 17 and 18 are added. The issues in the Office Action of June 8, 2007 are as follows:

- Claims 1-5, 7-12 and 14-16 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 4,462,046 (hereinafter *Spight*).

- Claims 6 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Spight* as applied to claims 1 and 8 above, and further in view of US 5,224,174 (hereinafter *Schneider*).

- The disclosure is objected to because of informalities at page 10, line 20.

Applicant hereby traverses the rejections and requests reconsideration and withdrawal in light of the remarks contained herein.

II. New Claims and Claim Amendments

Claim 17 is added by this amendment. Support may be found in the specification, especially in the description of FIGURE 1. Thus, no new matter is added. Claim 17 is allowable because the cited portions of the art of record do not teach or suggest at least the following aspects:

"[A] first processor in communication with said first sensor to receive said first signal and to generate first data describing one or more features of said image; a second processor in communication with said second sensor to receive said second signal and to generate second data describing said one or more features of said image; a third processor receiving said first and second metrics and forming a fused image signal therefrom." It does not appear that the cited portions of *Spight* teach or suggest the recited first and second processors generating data describing features of the image. Further, *Spight* does not appear to teach or suggest a processor forming a fused image signal from first and second data describing one or more features of an image.

Claim 18 is added by this amendment. Support can be found, at least, at page 6, lines 4-20. Thus, no new matter is added. Claim 18 is allowable at least because it depends from claim 17.

Claims 3 and 10 are amended to recite, in part, "such that the first and second optical transforms each target different aspects of the image information." Support may be found, at least, at page 6, lines 21-28. Thus, no new matter is added.

III.   Objection to Specification

The Specification is objected to for mistakenly referring to "processors 32a-b." Applicant thanks the Examiner for bringing this to attention and has amended the specification accordingly. Withdrawal of the objection is respectfully requested.

IV.   Claim Rejections

A.   Rejection of Claims as Anticipated by *Spight*

On pages 9-13, claims 1-5, 7-12 and 14-16 are rejected under 35 U.S.C. §102(b) as being anticipated by *Spight*.

1.   Independent Claims 1, 8, 15, and 16

Claim 1 recites, in part, "performing a first optical transform on the light to yield a first optically transformed light . . . [and] generating a first metric in accordance with the first optically transformed light . . . ." The Examiner contends that *Spight*'s Fourier transform meets the claimed "first optical transform," and that its resulting Fourier transformed signal meets the claimed "metric." *Office Action*, at p. 9-10. In response, Applicant has respectfully shown that the claim language differentiates between the first optical transform and the first metric by reciting that the claimed metric be generated *in accordance with* optically transformed light. It makes little sense to assert that something can be generated in accordance with itself. Applicant further showed that the signal $F_0(x,y)$ is not properly considered a matrix. Thus, it is believed that the reasoning in the rejection is incorrect.

In response to the Applicant's arguments, the Office Action asserts that $F_0(x,y)$ is a metric because it is a matrix describing particular frequency components of the input scene image. *Office Action* at p. 3. While Applicant does not assert that a metric must always

comprise a matrix, it is noted that the $F_0(x,y)$ signal is an optical signal originating from a
CRT screen. *See Spight* at Figure 1. Thus, *Spight* does not appear to teach that the $F_0(x,y)$ is
a matrix, nor is it clear how the $F_0(x,y)$ signal can be considered to be a matrix.

Further, the Office Action states:

> The claim limitation only reads that "the metric is generated in accordance
> with the optically transformed light" it doesn't read how and therefore the
> assumption that the two [transform and metric] are equivalent is applicable
> and maintained. (bracketed text added)

Office Action at p. 4. In other words, the reasoning of the rejection ignores the term
"generated in accordance with" because the claim language "doesn't read how" the metric is
generated. Regardless of the reasoning, it is noted that the rejection simply ignores the term
altogether. Applicant's argument is based on the language structure—saying that one thing is
generated in accordance with another is one rhetorical tool to differentiate between the two
things. Applicant knows of no rule in the English language that states that the term
"generated in accordance with" can be ignored if the reader does not feel enough detail has
been provided. If the Office Action is to be taken at its word, that the claim language should
state "how," such concern is one of breadth, not of grammar, and should be dealt with by
appropriate references to art.

Accordingly, the 35 U.S.C. § 102(b) rejection of record with respect to claim 1 should
be withdrawn. For the same reasons, the 35 U.S.C. § 102(b) rejection of record with respect
to claims 8, 15, and 16 should also be withdrawn.

2.   Dependent Claims 2-5, 7, 9-12, and 14

Dependent claims 2-5, 7, 9-12, and 14 depend either directly or indirectly from claims
1 and/or 8, each dependent claim thus inheriting all the limitations of its respective
independent claim. As noted above, *Spight* does not teach every element of independent
claims 1 nor 8. Consequently, *Spight* also fails to teach every element of dependent claims 2-
5, 7, 9-12, and 14. Accordingly, Applicant respectfully requests that the Examiner withdraw
the 35 U.S.C. § 102(b) rejection of record with respect to claims 2-5, 7, 9-12, and 14.
Moreover, each of these claims recites elements not taught by *Spight*.

For example, claim 3 recites that "the first optical transform is compatibly different from the second optical transform, such that the first and second optical transforms each target different aspects of the image information," and claim 10 recites similar features. Applicant respectfully points out that *Spight* only describes passing its object and reference signals through Fourier transform lenses. *Spight* at col. 4, lns. 27-63. Therefore, *Spight* does not teach applying different transforms to each signal, much less "compatibly different" transforms, as recited in claim 3 and 10. Applicant also points out that *Spight* requires that both of its signals be processed with the same transform. *E.g.*, *id.* at col. 4, ln. 55—col. 5. ln. 64.

In response to Applicant's arguments, the Office Action asserts that the Fourier lenses 30 and 32 provide different optical transforms because no two lenses can be exactly alike. Applicant notes that, even if such "micro-differences" exist, *arguendo*, *Spight* does not teach transforms targeting different aspects of image information, since *Spight* appears to teach Fourier transforms and only Fourier transforms. Accordingly, the 35 U.S.C. § 102(b) rejection of record with respect to claims 3 and 10 should be withdrawn.

Claim 5 recites "selecting first data from the first metric; selecting second data from the second metric; and fusing the first data and the second data to yield the processed metric," and claim 12 recites similar features. Again, *Spight* does not teach generating any metrics, as the term is used in the claims. Therefore, *Spight* does not teach selecting first data from a first metric, selecting second data from a second metric, and fusing the first data and the second data to yield a processed metric, as recited in claims 5 and 12. Accordingly, the 35 U.S.C. § 102(b) rejection of record with respect to claims 5 and 12 should be withdrawn.

Claim 7 recites "generating an image from the processed metric; and displaying the image," and claim 14 recites similar features. Again, *Spight* does not teach generating any metrics, as the term is used in the claims. Therefore, *Spight* does not teach generating an image from a processed metric and displaying the image, as recited in claims 7 and 14. Accordingly, the 35 U.S.C. § 102(b) rejection of record with respect to claims 7 and 14 should be withdrawn.

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B.   Rejection over *Spight* and further in view of *Schneider*

On pages 13-14, claims 6 and 13 are rejected under 35 U.S.C. § 103(a) as being

unpatentable over *Spight* as applied to claims 1 and 8 above, and further in view of

Schneider.

1.   Insufficient Motivation

The rejection of claims 6 and 13 should also be withdrawn because there is

insufficient motivation for a combination of *Spight* with *Schneider*. In support for the

proposed combination, the Examiner states that:

> It would have been obvious to one of ordinary skill in the art at
> the time the invention was made to modify *Spight*'s method by
> including the capability of detecting a target using the
> processed metric to the processor that yields the processed
> metric *in order to incorporate the capability of performing
> fingerprint pattern recognition*.

Office Action, at pp. 14-15 (emphasis added). However, the disclosure of *Spight* "relates to a

system for facilitating near real-time vision for a manufacturing processing machine."

Spight, at col. 1, lns. 7-10. There is absolutely no reason why a person of ordinary skill in the

art would be inclined to add fingerprint recognition capabilities into the manufacturing

processing machine of *Spight*.

In addition, it is unclear how the addition of *Schneider*'s fingerprint recognition into

Spight would in fact benefit *Spight*, if at all. Again, *Spight*'s goal is to provide system for

facilitating near real-time vision for a manufacturing processing machine. *Spight*, at col. 1,

lns. 7-10. The fingerprint recognition of *Schneider* does not advance *Spight*'s objective in

any way. In fact, the Examiner's stated motivation for adding *Schneider* to *Spight* to provide

"the capability of performing fingerprint pattern recognition" is circular in nature, stating that

it is obvious to incorporate *Schneider*'s features into *Spight* into order to have *Schneider*'s

features in *Spight*. This is merely a statement that the references *can be* combined and

provides no motivation for making the combination. The mere fact that references *can be*

combined does not render the resultant combination obvious unless the applied art also

suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990), *cited in* M.P.E.P. § 2143.01.

Furthermore, the Examiner has not provided any meaningful indication of how the proposed combination would be made, and Applicant contends these references cannot be easily combined. Applicant re-asserts that *Schneider*'s system utilizes mechanical ultrasonic waves, whereas *Spight* utilizes optical waves. Because the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *See In re Ratti*, 270 F.2d 810, 843, 123 U.S.P.Q. 349, 352 (C.C.P.A. 1959).

In response to Applicant's arguments, the Office Action asserts that the combination can be valid if one of ordinary skill can implement a predicable result. *Office Action* at pp. 7-8. However, it is unclear how one of ordinary skill in the art would implement a predictable result, since the system of *Spight* and the system of *Schneider* work in very different ways. For instance, *Spight* is directed to a robot vision system for use in an assembly line. *See Spight* at Col. 1, lns. 15-20 and 39-43. Light from a video signal of an object is produced at a CRT. *See id.* at Abstract. Similarly, light from a video signal of a reference object is produced by another CRT. *See id.* at Col. 10, lns. 50-63. Both light signals are then transformed, summed together, squared, inversely transformed, and analyzed for correlation. *See id.* at Col. 10, ln. 29, through Col. 11, ln. 28. The system of *Spight* is used to determine the position and orientation of parts in a manufacturing environment. *See id.* at Col 1, lns. 46-49. The vision system does not appear to contact the objects on the assembly line.

By contrast, the system of *Schneider* is an ultrasound system that requires contact between the object being imaged (*i.e.*, a finger) and the transducer. *See Schneider* at Abstract ("a live finger is placed upon a sensitive surface"), Col. 11, lns. 63-66, Col. 18, lns. 30-37, and Col. 24, ln. 61, through Col. 25, ln. 11. The system of *Schneider* is directed to imaging surface topology, especially of fingerprints. *See id.* at Col. 1, lns. 33-43. Fingerprint imaging is concerned with "with every minutia" of the fingerprint. *See id.* at Col. 4, lns. 9-13. *Schneider* states that optical fingerprint are unacceptable because of performance degradation due to air pockets between the skin and the lens and also due to oily or wet fingers. *See id.* at

Col. 5, ln. 36, through Col. 6, ln. 29. Thus, *Schneider* relies on ultrasound, rather than optics, to provide the alleged target detection. Accordingly, the proposed combination of *Spight* and *Schneider* would have to include the ultrasound capability of *Schneider* to provide the alleged target detection that is the focus of the combination. However, it is not clear how one of skill in the art would construct such a system. For instance, on the assembly line of *Spight*, the objects are moving, as well as the robot parts that are controlled by the vision system. *See Spight* at Col. 2, lns. 29-34. Thus, it is doubtful that the system would have an opportunity apply the "sensitive" surface of *Schneider* (*see Schneider* at, *e.g.*, Abstract) to contact the assembly line object of *Spight* without interfering in the movement of the object or the work path of the robots. It appears that such a system would slow down the assembly line of *Spight*, which is especially evident in light of the fact that the system of *Schneider* is concerned with "all minutia." Applicant has provided a declaration or Dr. Timothy Ostromek, which discusses some of the shortcomings of the combination of *Spight* and *Schneider*.

Further, the Office Action asserts that an ultrasonic system can be substituted for an X-ray system, as evidenced by *Carrot* (US 6,909,792). *See Office Action* at pp. 8-9. However, this reasoning is far too simplistic. Substituting an entire system for another system (allegedly taught by *Carrot*) does not teach that it is possible or desirable to combine portions of each system. As shown above, such a combination of portions of *Spight* and *Schneider* is undesirable.

In sum, the 35 U.S.C. § 103(a) rejection of record based upon a combination of *Spight* with *Schneider* is improper. Accordingly, Applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of record with respect to claims 6 and 13 be withdrawn.

2. Lack of All Claimed Elements

Dependent claims 6 and 13 depend either from claims 1 and 8, respectively, each dependent claim thus inheriting all the limitations of its respective independent claim. As noted above, *Spight* fails to teach or suggest all of the limitations of independent claims 1 and 8. The Examiner has not relied upon *Schneider* as teaching or suggesting those limitations, and Applicant respectfully asserts that *Schneider* does not cure those deficiencies.

Consequently, the combination of *Spight* and *Schneider*, even if proper, fails to teach or suggest all of the limitations of dependent claims 6 and 13. Accordingly, Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 103(a) rejection of record with respect to claims 6 and 13.

V. Conclusion

In view of the above, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 46030/P044US/10407181 from which the undersigned is authorized to draw.

Dated: September 6, 2007

Respectfully submitted,

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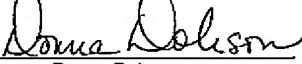2200 Ross Avenue, Suite 2800
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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

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